



THE POLYTHEISTIC GODLINESS OF THE STATE OF PENNSYLVANIA.



9  
SECOND

# ANNUAL ANNOUNCEMENT

OF THE

# POLYTECHNIC COLLEGE,

OF THE STATE OF PENNSYLVANIA.

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SESSION 1854—55.

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ENGINEERING, MINING, AGRICULTURE,

AND THE CHEMICAL AND MECHANICAL ARTS.

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*Professor of Metallurgy, and of Industrial, Analytical and Agricultural Chemistry.*

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*Professor of Mathematics, and Civil Engineering.*

WILLIAM H. B. THOMAS, A. M.,

*Professor of Mining Engineering, Mineralogy and Geology.*

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*Professor of Mechanical Philosophy, and the Principles of Machinery.*

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## PROFESSORS NOT OF THE GOVERNING FACULTY.

JOHN KERN,

*Professor of Mechanical, Architectural and Topographical Drawing.*

VINCENZIO DE AMARRILLI, A. M., Ph. D.,

*Professor of the French and Spanish Languages and Literature.*

B. H. ENTRUP,

*Professor of the German Language and Literature.*

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## Academical Department.

JAMES H. BOUCHER, A. M., Principal.

\* This Chair is supplied at present by the Professor of Chemistry and the Professor of Engineering.

## ANNOUNCEMENT.

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In announcing the commencement of the second year of the Polytechnic College, the Faculty congratulate the Trustees, and the Public, on the complete organization of all the Departments; and on the cheering evidences of approval, with which the establishment of the College, has been hailed throughout the Union.

Prior to the existence of this institution, those important pursuits which develop the mining, agricultural and manufacturing resources of the country; opening mines, and locating and directing furnaces, factories and foundries; perfecting the cultivation of the soil, and multiplying and improving means of inter-communication: had no special educational institution, to which recourse for practical and scientific instruction, could be confidently had. The Polytechnic College, is believed fully to supply that glaring deficiency. Incorporated by the Legislature of the State, with full collegiate powers, it now affords a thorough professional education to students intended for CIVIL and MINING ENGINEERING, and the higher MECHANICAL, MANUFACTURING and AGRICULTURAL arts. It is not, as some have imagined, a military school; but aims to cultivate the industrial arts of peace. It is not a mere literary college, but students are instructed professionally, preparatory to entrance upon active, lucrative and honorable business. It therefore occupies a new position among the educational institutions of the country. Interfering with none, the Faculty ask the co-operation of all, and are happy to acknowledge that, even from our extreme territorial limits, naught but the voice of encouragement and congratulation has been heard.

Professional Miners, Engineers, and Directors of farms and factories, have not as yet existed as a class in this country. Incompetent persons, are therefore thrust into situations of profit and responsibility, which properly devolve on men skilled in science and art; and hence the most wisely projected enterprises have been abandoned, and fortunes squandered, and human life is daily perilled.

Colleges of Mines, and of Arts, have, it is true, been established through the liberality of the Governments of France and Germany; but the privilege of prolonged study and residence abroad, is accorded to but few of our youth. The many equally able to do honor to their country, and their calling, are denied those expensive facilities.

The Polytechnic College will, it is believed, afford all those facilities, equal to any obtainable abroad, and at a cost which shall deter none from thorough preparation, before entering upon their destined vocations.

A few suggestions on the importance of the arts of Production and of Construction, and of the extended knowledge demanded in their production, will not be improper at this time.

Cheap travelling and transportation, are daily lessening the comparative advantage hitherto possessed by the producer of the raw material, over the manufacturer. Wherever manufactures are most perfected, there, in these days of unrestricted commerce, will the raw material flow—to be brought back and re-sold at high prices to the original producer. Hence it is affirmed that the cobalt and argenti-ferous ores of Arkansas can be more cheaply smelted in Philadelphia than in that State. Hence our ores of copper have been sent to a foreign country, to be reduced and returned as metal; and the wool of the Northern and Western States is exported, to be again found among the fine imported fabrics. In the first case cited, the transportation is domestic, and the nation is not impoverished. In the last two, there is a national loss—a loss of employment—a loss of capital—a loss of position before the art-tribunal of nations. Whatever standing the United States now hold as a manufacturing people, is due to the quantity rather than the quality of our goods. If we would improve our position, or even maintain it, the quality of our products must be perfected. This can be best and most effectually done by educating the inventive genius of our country, and directing by the eye of taste, and the light of science, the multiplied processes of art.

Upon the Civil Engineer depends the location, construction and perfection, of those great avenues of inter-communication, by which the products of industry are transported; the transmission of intelligence, and the healthy circulation of society secured; customs and courtesies interchanged; and civilization and national prosperity advanced. The business of the engineer has thus assumed a public—a national importance. It demands not only a thorough knowledge of the MATHEMATICS and the use of INSTRUMENTS, but of the means of judging of the GEOLOGICAL structure of the country, through which he is projecting his lines of improvement; of the CHEMICAL and MECHANICAL causes which destroy substances used in construction; of the composition and strength of MATERIALS employed for embankments, culverts and bridges; and of the wear and tear of the elements,

as well as the strain to which weights at rest, moving at slow rates, or at high velocities, subject his works.

On him frequently devolves the selection of the most available propelling power, whether air, water, animals or steam; and its application agreeably to the best methods. The study of these forces, therefore, must constitute a portion of his instruction. Important also is a cultivated taste in ARCHITECTURE, and a knowledge of the principles of that beautiful and interesting branch of art. In order easily, and gracefully, to express his conceptions of architectural beauty, the arts of DESIGN must be studied and applied. Way stations and depots, bridges and public works, are now required to be not only conveniently situated, and securely constructed, but their exterior must be symmetrical, and in most cases chastely and consistently ornamented.

Our prescribed course of civil engineering, while it compels the acquisition of no extraneous knowledge, renders all those studies obligatory, which are necessary to the education of the thorough-bred engineer. Theory and practice will be so combined, as to insure, that those who have attained to the honors of our certificate of capacity, are every way worthy the entire confidence of employing parties, and companies engaged in works of improvement.

To the Mechanical Engineer is confided the important duty of multiplying the effective industry of the nation, and by the perfection and concentration of labor-saving machinery, of enabling us in manufactures, to compete successfully with foreign countries, where labor is cheaper. But the knowledge required to direct the fabrication of machinery, is not only that of the vice-bench and the turning-lathe. A familiarity with the science of MECHANICS in its fullest extent, and with the principles of PHYSICS; the tenacity and durability of materials, the expansive power of vapor and of air, the force of currents, and of falls of water; of wind, and the nature and extent of electrical and magnetic influences—all are required. ORGANIC CHEMISTRY reveals to him the source of the textile fabrics, MINERALOGY that of the metallic and earthy substances which he employs, and INDUSTRIAL CHEMISTRY and METALLURGY teach him the economical methods of moulding these materials into an infinity of required shapes, and of making them subservient to the uses of man. The arts of DESIGN are indispensable to the mechanical, as to the civil engineer; and the locating and arranging of workshops and factories involves some knowledge of the builder's art.

Chemistry, the most rapidly advancing science of the day, and

that which probably, more than any other, is contributing to human comfort and human progress, demands of its student not only a knowledge of tests and reactions, and of the operations of the laboratory, but also of the native sources of the materials used in those operations; of the external characters of MINERALS and the structure of VEGETABLES, no less than of their constitution. Furnace processes require that he be familiar with the economical employment of fuel; and the best means of erecting and repairing structures devoted to the branch of learned industry which he is to direct. The ANALYSIS of minerals is the test of their adaptedness to the purposes of art, and the manufacture of soda ash, of sulphuric acid, of sugar, of illuminating gas, of pottery, of glass or of iron, need but be cited: the intelligent mind realizes at once, how deeply dependent on INDUSTRIAL CHEMISTRY, are human pursuits, in all their ramifications.

The Engineer of Mines must bring to his preliminary exploration of a mineral region, an intimate acquaintance with MINERALOGICAL and PALEONTOLOGICAL characters, as well as with the laws of GEOLOGICAL formation and displacement. His subsequent workings—opening shafts, drifts and drains, shoring his excavations, following the dip and direction of strata, or descending perpendicularly, demand quite as high a degree of MATHEMATICAL skill as do the surface operations of the civil engineer. His instruments are frequently those of PHYSICS and of CHEMISTRY, and can be successfully employed, only, when he is acquainted with these sciences. A knowledge of the principles of MACHINERY, alone can guide him in the selection and employment of power, for the purposes of elevating, screening, draining and ventilating. Every stage of mining operations demands strict habits of observation, and a fertility of invention, possessed only by one bred to habits of study and reflection.

Agriculture draws from CHEMISTRY an exact knowledge of the constituents of the soil and the crop, and thence obtains rules for the amelioration of the former, and the profitable cultivation of the latter. Farm machinery, to be effective, must be constructed in accordance with the principles of MECHANICS. The GEOLOGICAL and MINERALOGICAL character of the soil, sub-soil, and the more deeply-laid strata, control all the farmer's schemes of improvement. An acquaintance with VEGETABLE STRUCTURE, lends a new intellectual charm to his manual pursuits. ZOOLOGY is the best introduction to a knowledge of breeds, and of the scientific improvement of stock; and cultivated

habits of observation, give him an exact appreciation of the practical value of METEOROLOGICAL facts and phenomena.

*These five departments are mutually dependent.* The establishment neither of a school of ENGINEERING, nor of MECHANICS, nor of CHEMISTRY, nor of MINES, nor of AGRICULTURE alone, would have fulfilled the object contemplated in the founding of this institution: any one might have furnished half-educated graduates, but their union in a POLYTECHNIC COLLEGE affords an education, solid, elevated and usefully applicable in all the higher departments of construction and of production—one which provides for a wider range of honorable employment, than any which has hitherto been afforded.

The wants of a people should mould their educational system. Our first great duty and destiny, is to reclaim a continent to cultivation and civilization. Swamps, fluvial and littoral, are to be drained; plantations to be irrigated; dwellings to be warmed, lighted and ventilated; cities and towns to be graded, sewered, and supplied with water and gas; rivers made navigable; mountains tunnelled, and the great inter-oceanic lines of travel and transport extended and completed; untold mineral and agricultural treasures are to be produced, and wrought on a scale commensurate with the vastness of our resources; furnaces, mills and foundries, are to be erected and conducted. These to be followed by the higher and more delicate branches of manufacture, and these again, by the more graceful arts of design, the triumphs of the pencil, the graver and the chisel.

In the successful completion of these great projects every citizen is immediately interested, and a majority will directly participate. The mind is lost in the contemplation of the vast future, and fails to realize the art-knowledge, to be demanded of the innumerable Agents, Superintendents, Engineers, Contractors, Directors, Presidents and Commissioners, of these great enterprises and public works. Hitherto the demand for such knowledge has exceeded the supply, and for the future, the disproportion will be greater, unless systematized technical education supply the want.

## ADVERTISEMENT.

The College edifice, corner of Market street, and West Penn Square, is situated in the centre of the city, and opposite Penn Square, a pleasant and healthful place of resort during the greater part of the year.

The building is well adapted for the extensive course of instruction, provided for in the liberal plan of education adopted by the trustees.

The ground floor contains the Analytical Laboratory, arranged on the German plan, and provided with furnaces, apparatus, tests and re-agents, for the performance of metallurgic processes; of the operations illustrative of the principles of the science; and of the analysis of organic and inorganic compounds. Arrangements may be made for practical instruction in any branch of chemistry. Parties requiring analysis, may rely upon scrupulous accuracy and full and early reports.

The Lecture Room, and the Class Rooms of the Professors, are comfortably seated and well ventilated.

The Mineralogical Cabinet contains a set of crystal models, from Vienna, showing the various forms of crystals which occur in nature, and among the products of art; an instructive series of specimens, illustrating the characters of ores and minerals used in the arts; and a collection arranged according to Geological position, each formation in which fossils occur being represented by those which are characteristic. Extensive and valuable additions to the collection are constantly being made. More than twenty-five hundred additional specimens have been received within a few weeks, and will be placed on the shelves before the commencement of the session.

The Drawing Room has the advantage of being lighted from the roof, and under Prof. KERN, affords superior facilities for studying the art of design in any of its departments.

## Admission.

Candidates for admission into the courses of the first session of the first year, are examined in the English branches, including Plane Geometry, and Algebra to Simple Equations.

Candidates for advanced standing, will be examined on all the studies, previously pursued by the members of the class to which they aspire.

An ACADEMICAL DEPARTMENT (see page 16) has been organized, under the charge of J. H. BOUCHER, A. M., into which younger and less proficient students may enter, and be rapidly prepared for the College courses.

Bachelors of Arts, graduates of respectable colleges, may enter the first course of the second year, and become candidates for the certificate of capacity at the expiration of one year.

Gentlemen who wish to attend single or partial courses, can be accommodated without previous examination, but they will not be entitled to the certificate of the College.

### Synopsis of Courses.

**MATHEMATICS.**—Algebra completed; Geometry completed; Mensuration; Plain and Spherical Trigonometry; Surveying; Descriptive Geometry—its theory and applications; Shadow and Perspective; Analytical Geometry; Differential and Integral Calculus.

**GENERAL MECHANICS.**—Laws of motion, and of Equilibrium; Statics of Solids.

**GENERAL PHYSICS.**—Properties of Matter; Form; Molecular Action; Hydrostatics; Hydrodynamics; Heat; Steam; Magnetism; Static and Dynamic Electricity; Electro-Magnetism; Acoustics; Light; Photometry.

\*\* Students are exercised during the course in determining the specific gravities of solids, liquids, vapors and gases; in the employment of the Barometer; the construction and use of Thermometers; in the use of the Hygrometer and Photometer.

**GENERAL CHEMISTRY.**—Nomenclature; Laws of Combination; Non-metallic Elements; Metals; Acids; Bases; Salts: Organic Acid, Alkaloid, and Neutral Bodies; Re-agents; Testing in the Arts.

\*\* There is a weekly exercise in manipulations, during which students repeat, in the laboratory, all the important experiments executed by the Professor in the Lecture Room.

**MINERALOGY.**—Crystallography; Form, Structure, Optical Properties, Chemical Characters, and Classification of Minerals and of Rocks.

**GEOLOGY.**—Physical Geography; Study of the Earth's Surface; Influence of the Atmosphere, of Water and of Volcanic Action; Palaeontology; Geological Periods; Primitive, Metamorphic, Silurian, Devonian, Carboniferous and Tertiary Formations; Economic Geology; Artesian Wells.

\*\* Students will make excursions, with the Professor, into the interesting neighboring localities of Pennsylvania and New Jersey.

**NATURAL HISTORY.**—Organization, Functions, and Classification of Animals; Special History of Useful Animals; Animal Force, Traction, &c.; Preservation of Meat; Animal Products—Milk, Butter, Cheese, Tallow; Animal Fibre; Bone; Artificial Incubation; Useful Insects and their Products; Insects Injurious to Vegetation.

Structural Botany; Relation of Plants to the Soil and the Atmosphere; Classification of Plants—Wood-, Fibre-, Starch-, Sugar-, Tannin-, Oil-, Color-producing Plants; History of Vegetable Substances used in the Arts.

\*\* Botanical excursions into the environs, will be made during the Floral Season.

**DRAWING.**—Linear; by the Scale: Shading; Elevations and Plans of Dwellings, Stores, Bridges, Factories, Implements, Apparatus, Machinery and Public Edifices; Mapping and Plotting; Drawing from the Round; Geological Sections, &c.

**INDUSTRIAL PHYSICS.**—Kinds and Uses of Fuel; their Comparative Value; Structure of Furnaces and Boilers; Transmission of Heat; Refrigeration, Vaporization, Distillation, Evaporation; Heating of Liquids; Warming and Ventilating Houses and Public Buildings.

**APPLIED MECHANICS.**—Statics of Articulated Systems; Rigidity of Chains and Cordage; Effects of Friction and Shock; Dynamometers; Pressure of Water; Ajutages; Theory of Water Wheels; Machines to raise Water; Blowing Machines.

**CONSTRUCTION OF MACHINES.**—Means used to Impart, Transmit, Modify and Regulate the Motion of Machines; Properties of Materials used in the Construction of Machines; Flexible and Inflexible Joints; Employment of Formulae.

\* \* \* Students will visit the large machine shops with which Philadelphia abounds, and familiarize themselves with the machinery used in the working of metals, &c.

**ANALYTIC CHEMISTRY.**—Ends, Means and Methods of Analysis; Recognition and Dosing of Non-metallic and Metallic Bodies, Acids, and Bases: Qualitative and Quantitative Analysis of Ores, Limestones, Coals, Mineral Waters, Soils, Manures, and Products of Art; Detection of Poisons; Assaying; Organic Analysis; Soaps, Alcoholic Liquids.

**INDUSTRIAL CHEMISTRY.**—Filtration and Purification of Water; Extraction of Sulphur, Iodine, Starch, Sugar, Salt, Oils, Fats and Resins; Manufacture of the Mineral Acids, of Soda and Potash and their Salts; of Alum, White Lead, Illuminating Gas, Alcohol, Vinegar, Animal Black, Paper, Soaps, Glass and Pottery; Tanning, Dyeing, Bleaching, &c.

**AGRICULTURAL CHEMISTRY.**—Vegetable Nutrition; the Constituent Elements of Plants; Source and Assimilation of Oxygen, Hydrogen, Nitrogen, Carbon and the Inorganic Elements; Rotation of Crops; Marl, Lime, Plaster, Shells, Bone Dust, Guano, Barn Yard and Street Manures; Green Soiling; Fermentation; Vegetable Mould; Classification of Soils; Residue of Crops; Meteorological Considerations; Draining; Subsoiling; Springs; Irrigation.

**CIVIL ENGINEERING.**—Use of Instruments, Compass, Level, Transit, Theodolite, and the Common, Aneroid and Thermometric Barometers; Equilibration of Arches; Stability of Foundations on Land and under Water; Principles of Framing, Stone-Cutting, Masonry and Carpentry: Bridging; Dimensions and Strength of Walls, Arches, Pillars, Frames, Trusses, Abutments and Piers; Locating, Staking Out, Constructing and Estimating Roads, Railroads and Canals; Laying out Curves; Stationary Engines and Locomotives; Culverts, Drains and Water Works.

\* \* \* Tuesday is Field Day, when the students are exercised with the instruments.

**ARCHITECTURE.**—Parallel of the Orders; Ancient and Modern Styles; Principles of Design.

**METALLURGY.**—Smelting of Iron; Ore, Fuel, Flux: Qualities of Pig Iron; Puddling, Refining, Forging, Rolling; Employment of Waste Gases and Heat; Blowers; Patterns, Moulding, Casting: Nature and Manufacture of Steel: Metallurgy of Zinc, Lead, Tin, Copper, Silver.

\*\* Visits to smelting and other furnaces, in and near the city, will be made from time to time.

**MINING ENGINEERING.**—Geographical Distribution of Mines; Order of Exploration; Processes of Excavation; Employment of Tools and Powder; Boring; Quarrying; Subterranean Excavation; Shoring, Draining, Ventilation; Davy's Lamp; Elevating, Crushing, Screening and Transportation.

\*\* Opportunities will be afforded to visit the coal, iron, and other mines in Eastern Pennsylvania.

**MODERN LANGUAGES.**—French and Spanish Languages and Literature; German Language and Literature.

Lectures on the JURISPRUDENCE of the United States and of Foreign Countries, relating to Patents for Inventions and Discoveries, and to copyright of designs.

### Certificate of Capacity.

To entitle a student to the certificate of capacity, in any of the following departments, he must have pursued the courses of study prescribed under the head of that department, and have passed a satisfactory examination. In particular cases, and with the consent of the faculty, certain studies may be substituted for others. Due credit will always be given for studies prosecuted in advance of position.

#### CIVIL ENGINEERING COURSE.

##### *First Year.*

Mathematics,  
General Chemistry,  
General Physics,  
General Mechanics,  
Field Practice (Commenced),  
Drawing (Topographical.)

##### *Second Year.*

Civil Engineering, and Practice,  
Mineralogy, and Geology,  
Applied Mechanics,  
Architecture,  
Industrial Physics,  
Drawing (Topographical and Architectural).

#### MECHANICAL ENGINEERING COURSE.

##### *First Year.*

Mathematics,  
General Chemistry,  
General Physics,  
General Mechanics,  
Drawing (Mechanical.)

##### *Second Year.*

Mineralogy, and Geology,  
Construction of Machines,  
Metallurgy,  
Applied Mechanics,  
Industrial Physics,  
Drawing, and Architecture.

## CHEMICAL COURSE.

*First Year.*  
 General Chemistry,  
 General Physics,  
 Mineralogy,  
 Geology,  
 Laboratory Practice.

*Second Year.*  
 Industrial Chemistry,  
 Analytic Chemistry (Practice),  
 Agricultural Chemistry,  
 Industrial Physics,  
 Metallurgy,  
 Nat. History (Vegetables),  
 Drawing, or a Modern Language.

## MINING ENGINEERING COURSE.

*First Year.*  
 Mathematics,  
 General Chemistry,  
 General Physics,  
 General Mechanics,  
 Mineralogy,  
 Geology.

*Second Year.*  
 Mining Engineering,  
 Applied Mechanics,  
 Metallurgy,  
 Industrial Physics,  
 Drawing,  
 Mineral Analysis.

## AGRICULTURAL COURSE.\*

*First Year.*  
 Mathematics,  
 General Chemistry,  
 General Physics,  
 General Mechanics,  
 Land Surveying,  
 Drawing.

*Second Year.*  
 Mineralogy,  
 Geology,  
 Agricultural Chemistry,  
 Analytic Chemistry,  
 Natural History, (Zoology  
 and Botany.)

## T e r m s .

Matriculation Fee, paid once only, . . . . .	\$5
Fee, per semi-annual Session, to any of the above five courses, . . . . .	60
Drawing Ticket, . . . . .	10
For extra Laboratory instruction, the fee is proportioned to the time the student is actually engaged.	

Before a student can receive a ticket of admission to the Lectures of any professor, it is necessary that he enter his name and Post Office address, in the College Register, and take his Matriculation ticket. It is desirable that students Matriculate and obtain their tickets, with as little delay as possible after their arrival in the city.

## Examinations.

The aim of each professor is, to render the instruction in his department as thorough as possible. Oral examinations and reviews, are held

\* This instruction is not designed to supersede practice in farming operations. The means of reaching and leaving the City are so multiplied and rapid, that students who require to inspect and participate in the daily duties of the Farm, can do so under intelligent agriculturists in the neighborhood of Philadelphia, without serious interference with College studies.

weekly; and oral and written examinations on all the studies, at the end of each Session.

### Diploma.

Although it has been provided, that students who desire to enter early upon any of the five branches of industry above cited, may be prepared therefor in two years, and receive the Certificate of Capacity of the College: yet it is recommended to gentlemen whose time will admit, to pursue a three years' course; which will give opportunity to attend all the lectures and practical instruction in all the departments, including one or more of the modern languages, and entitles the student, after examination, to the Diploma of the College, and the degree of Bachelor of Industrial Arts. The graduate is therefore fitted to enter upon any responsible position in connection with mining, manufactures, agriculture, public works, and improvements, to which he may aspire.

### Society.

The Polytechnic Society, composed of students of the College, holds weekly meetings, in the College Building, under the sanction of the Faculty, for the purpose of discussing scientific questions, reading essays, &c. At every meeting the members appoint, in rotation, one from their own body, to recapitulate the experimental lectures which one of the professors will give during the ensuing week. These recapitulatory lectures are delivered in the presence of the Professor and the Society. The student is allowed the use of apparatus, and thus is exercised in public speaking, in experimenting, and in imparting the knowledge he has acquired. To all, and especially to those who are preparing to become Teachers, Lecturers, or Professors of Experimental Science, this exercise is of great advantage.

### Commencement.

The College year is divided into two Sessions of about five months. The first commences on the second Monday in September, and closes on the last of January. The other commences on the second of February, and closes on the last of June. July and August, and a week at Christmas, are vacations.

The Public Commencement for Conferring Degrees, and Certificates of Capacity, is held on the last day of June. Degrees and Certificates may also be conferred on the last of January.

Additional information as to terms, courses of study, boarding, &c., may be obtained by addressing Dr. ALFRED L. KENNEDY, No. 268 South Eleventh Street, or at the College. *Philad'a, Aug., 1854.*

## Academical Department.

JAMES H. BOUCHER, A. M., PRINCIPAL.

This Department, recently organized by the Board of Trustees, will be opened in the College Building, on Monday, September 4th, 1854.

Students, whose deficient English and Mathematical Education disqualifies them from joining the College Classes, will be received into this Department at any time, and be rapidly prepared, by special instruction, to enter College.

Parents will find the thorough training of this Academy the best adapted to prepare their sons to pursue the College courses profitably at the earliest future session. To such pupils a regularly progressive series instruction is afforded, where improvement is certain, rapid, and uninterrupted by frequent changes of schools, books and discipline.

The advantages of this Department will not, however, be confined to youth intended for the College, but will be open to a limited number of young gentlemen, who desire an extensive and efficient Academic course of English, Classics and Mathematics.

The Principal, a graduate of the New York State Normal School, and possessed of many years' experience as Teacher and County Superintendent of Education, brings to his position a familiarity with all those modern improved aids and incentives, the usefulness of which is acknowledged, by the best educators in Europe and this country.

The Discipline is parental mild but firm. A gentlemanly deportment, thoroughness in recitation, and a high moral and intellectual tone, will be inculcated and maintained.

A full report of the attendance and conduct of each pupil, and of all his school exercises, will be regularly transmitted to parents. Public examinations, closing with an exercise in public speaking, will be held at the end of each Session. Examinations, free to parents only, are held during each Session.

The Academic year is divided into two Sessions, of five months each, commencing respectively on the 1st of September and the 1st February.

### TERMS.

English and Mathematics, per Session, . . . . .	\$25
Ancient or Modern Languages, . . . . .	10
Bills payable—one half in the middle, balance at the close of the Session.	

Apply to J. H. BOUCHER, A. M., at the College Building.

ACT INCORPORATING  
THE  
POLYTECHNIC COLLEGE,  
*And which was Approved April 5th, 1853.*

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SECT. 1. That Peter A. Browne, George H. Burgin, Garrieck Mallery, Morton McMichael, John McIntyre, John Agnew, John Tucker, Samuel Jones and Matthew Newkirk, of the City of Philadelphia; John P. Verree, D. Franeis Condie, Joseph S. Silver, Furman Sheppard and Alfred L. Kennedy, of the County of Philadelphia; Henry A. Muhlenberg, of Berks County; David Landreth and Daniel M. Keim, of Bueks County; Franeis W. Hughes, of Sehuylkill County; Thomas H. Burrowes, of Lancaster County; Luther Kidder and John N. Conyngham, of Luzerne County; William Jessup, of Susquehanna County; George Smith, of Delaware County; Joseph Baily, of Perry County; James Hamilton, of Cumberland County; Joseph Henderson, of Washington County; and Daniel Agnew, of Beaver County; all in the State of Pennsylvania, and their successors, shall be and the same are hereby constituted a body politic and corporate, under the name, style and title, of the *Trustees of the Polytechnic College of the State of Pennsylvania*, and by the same name shall have perpetual succession, and be able to sue and be sued, plead and be impleaded, in all Courts of Record and elsewhere, and shall be competent and capable in law and in equity, to take and to hold to them and their successors, for the use of the said College, lands, tenements, hereditaments, moneys, goods and chattels, of whatever kind, nature or quality soever, by gift, grant, bargain, sale, assurance, will, devise or bequest, from any person or persons capable of making the same:

*Provided*, The same do not exceed the yearly value of ten thousand dollars; and the same to grant, bargain, sell, devise, alter, lease or dispose of, for the use of said College, and to erect such buildings as may be necessary, and generally to do all and singular the matters and things whieh it shall be lawful for them to do, for the well being of said College, and the due managing and ordering the affairs thereof.

SECT. 2. That the Governor of the State of Pennsylvania, for the time being, shall be ex-officio a member, and the President of the said Board of Trustees.

SECT. 3. That the Trustees of said College shall have full power to make, and use a common Seal, and the same to alter at their pleasure.

SECT. 4. That the said Trustees shall hold their first meeting in the City of Philadelphia, on the first Monday in May, after the passage of this Act; five of them shall constitute a quorum, who shall have the power of transacting the business of the College, particularly of making By-laws and Ordinances, for the government thereof, of electing Trustees in the place of those who may be removed by death, resignation, or otherwise; of electing, appointing, and removing the President, Professors and Tutors of said College, and of contracting with them for their salaries, of appointing committees of their own body, to carry into effect all and every the resolutions of the Board; appointing a President, Secretary, Treasurer, and whatever officers may be thought necessary for managing the concerns of the corporation. *Provided always*, That no ordinance or law shall be of force which shall be repugnant to this Charter, or contrary to the laws of the United States or of this State.

SECT. 5. That the object of said College, shall be the education of youth in the Arts, Sciences, Languages and Literature, particularly Mining, Engineering, and the Natural Sciences, in their applications to the Arts and Manufactures; and the President and Professors, or a majority of them, shall constitute the Faculty of the College, which Faculty shall have the power of enforcing the rules and regulations, adopted by the Trustees for the government of the Students, by rewarding or censuring them, and finally by suspending such of them, as after due admonition shall continue disobedient and refractory, until a determination of the Trustees can be had.

SECT. 6. That the Faculty, by and with the approbation of the Board of Trustees, or of a quorum thereof, signified by their mandamus, shall have full power to grant degrees in the liberal Arts and Sciences, to such Students of the Institution, and others, as by their proficiency in learning, or other meritorious distinction, they shall think entitled to them, and to grant to such graduates, diplomas or certificates, under the common Seal, and signed by the Faculty, to authenticate and perpetuate such graduation.

SECT. 7. That the Legislature reserves the right to revoke, alter, or amend the Charter hereby granted, at any time they may think proper.